Acta Neurol Scand 2001: 103: 255–258
Printed in UK. All rights reserved

ACTA NEUROLOGICA SCANDINAVICA
ISSN 0001-6314

Short communication

Interleukin-1β converting enzyme/Caspase-1 (ICE/Caspase-1) and soluble APO-1/Fas/CD 95 receptor in amyotrophic lateral sclerosis patients

Iłżecka J, Stelmasiak Z, Dobosz B. Interleukin-1β converting enzyme/Caspase-1 (ICE/Caspase-1) and soluble APO-1/Fas/CD 95 receptor in amyotrophic lateral sclerosis patients.
Acta Neurol Scand 2001: 103: 255–258. © Munksgaard 2001.

Objectives – The aim of the study was to investigate the role of ICE/Caspase-1 and soluble APO-1/Fas/CD 95 receptor in amyotrophic lateral sclerosis patients. *Material and methods* – The apoptosis parameters were measured by enzyme-linked immunosorbent assay (ELISA) in serum and cerebrospinal fluid from 25 amyotrophic lateral sclerosis and 15 control patients. *Results* – There has been shown a significant increase of ICE/Caspase-1 level in serum, and significant decrease of this parameter in cerebrospinal fluid from amyotrophic lateral sclerosis patients. Soluble APO-1/Fas/CD 95 level in amyotrophic lateral sclerosis patients did not differ from the control group. There was no significant correlation between clinical status, duration of amyotrophic lateral sclerosis, and levels of ICE/Caspase-1 and soluble APO-1/Fas/CD 95. *Conclusion* – Our study suggests that ICE/Caspase-1 may play a role in neurodegeneration in ALS. Due to ethical difficulties we cannot include patients suffering from progressive neurological diseases, who are a more appropriate control group for the amyotrophic lateral sclerosis patients. Therefore we are limited in drawing conclusions from the research.

J. Iłżecka, Z. Stelmasiak, B. Dobosz
Department of Neurology, Lublin Medical School, Poland

Key words: apoptosis; Caspase-1; sAPO-1; amyotrophic lateral sclerosis

Joanna Iłżecka, Department of Neurology, Lublin Medical School, Jaczewskiego 8, 20–954 Lublin, Poland

Accepted for publication December 29, 2000

It has been suggested that apoptosis may play a role in the mechanism of neurodegeneration in amyotrophic lateral sclerosis (ALS) (1). Interleukin-1β converting enzyme/Caspase-1 (ICE/Caspase-1) is a cysteine protease that shares sequence homology with the protein product of *ced-3*, the gene responsible for cell death of the *Caenorhabditis elegans*. Its homology initiated studies about the role of ICE/Caspase-1 in apoptosis (2, 3). The activation of caspases appears to play a key role in this process (4). APO-1/Fas/CD 95, a member of the tumor necrosis factor receptor superfamily, is a transmembranous protein that can transduce cell death signals via a proteolytic cascade upon cross-linking or ligand binding (5, 6). Soluble APO-1/Fas/CD 95 (sAPO-1/Fas/CD 95) is able to protect cells from Fas-mediated apoptosis (7). Triggering of CD 95 rapidly stimulates the proteolytic activity of ICE. Overexpression of ICE potentiates Fas-mediated cell death (8, 9). Determination of apoptotic parameters could help to explain the mechanism of neurodegeneration in ALS.

Material and methods

Twenty-five patients with clinically definite ALS were studied. ALS was recognized on the basis of El Escorial Criteria WFN of ALS (10). The mean duration of the disease was 1.4 years (range 3 months–4 years). According to Munsat, the ALS Health State Scale (11), the patients were divided into 4 groups: mild, moderate, severe and terminal,